

biologists welcome this outstanding handbook on True Bugs of the World which has been missing for a very long time.—*Nils M. Andersen, Zoological Museum, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen, Denmark.*

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ALL ABOUT THE MARAUDERS OF THE JUNGLE

J. New York Entomol. Soc. 103(2):225–227, 1995

Army Ants: The Biology Of Social Predation.—William H. Gotwald, Jr. 1995. Cornell University Press, Ithaca. xviii + 302 pp. ISBN 0-8014-2633-2. Hard cover, £31.50.

When I met Gotwald in 1985 at the annual meeting of the French-speaking section of the International Union for the Study of Social Insects in Diepenbeek, I was a young, enthusiastic student in ant systematics. I found myself somewhat betrayed, as I was not allowed to study those fantastic, tropical ants I was reading about in novels such as *Marabunta* by Stephenson, dealing with those ferocious ants which threatened even the life of the pioneers out in the Amazonian jungle. And here was Bill Gotwald, specialist in those beasts. When I asked him about how it feels to be out there in the jungle to study army ants, he answered with some disappointment, that he has no 'lust' anymore, to be out there in the bush, to run all day long following tracks and not to see a lot. At least not enough to satisfy the National Science Foundation, which supported his projects. I was perplexed, to say the least.

Now, 10 years later, assured by my own field experience that army ants are definitely the *non plus ultra* of things to meet out there in the jungle, I wonder what Gotwald has to tell us in his new book on army ants. Expectations are high, especially as he has chosen the same title as the pioneer in army ant research, T. C. Schneirla, in his 1971 volume *Army Ants*. This sounds very familiar. Didn't Hölldobler and Wilson (1990) recently publish a Pulitzer Prize winning book, *The Ants*, and replacing with it *Ants* by the former master myrmecologist William Morton Wheeler, first published in 1910, but still available in book stores (Wheeler, 1910)? Both the army ant books have the same format, so what is different? Maybe there is a difference, as Schneirla used a subtitle "A study in Social Organization" whereas Gotwald changed that into *The Biology of Social Predation*.

Schneirla produced the largest part of the information in his book by himself. Gotwald is synthesizing a lot of work produced by other workers, especially the systematics and behavior. The systematics of army ants had a brilliant treatment by Bolton (e.g., Bolton, 1990), which finally led to the (only) well corroborated army ant clade within the ant phylogeny, and to the erection of five army ant subfamilies (doryline section): Aenictinae, Aenictogitinae, Dorylinae, Ecitoninae, Cerapachyinae, and Leptanilloidinae (Baroni et al., 1992). This publication, the first and most important study to use a complete data set for all the subfamilies, is included in the references, and is duly suppressed in the text of the systematics section. Franks probably contributed most during the last twenty years on the behavioral side, mainly by studying the Neotropical ecitonines on Barro Colorado Island, and in the Peruvian Amazon (see references in the book).

How then is the synthesis? Sloppy as concerns systematics, the base for the very much evolutionary approach chosen in this book. Gotwald talks about evolution of army ants, adaptive syndromes, and he does not deal with a monophyletic group, the army ants, which all arose from a common ancestor! In his figure 2.1, he shows a phylogeny of the ants, where the Cerapachyinae are more closely related to the Dorylinae and Aenictinae than are the Ecitoninae. But in the book, his army ants exclude Cerapachyinae. How then can you talk about an adaptive syndrome of army ants as opposed to convergent evolution of army ant behavior in ants such as some ponerines or the Leptanillinae? How can you choose an outgroup (Cerapachyinae) to understand the direction of the evolution of certain characters, which is in fact part of the group itself? This does not make sense to a well informed reader; it is just another nice story. It is even more painful, because Gotwald got his basic training as a morphologist (Gotwald, 1969) among systematists (E. O. Wilson and W. L. Brown, Jr.).

Flipping through the drawings and pictures, both in Schneirla (1974) and in Gotwald's book, it is obvious that there is not much new documentation around. Most of the pictures were taken by Rettenmeyer, and in fact replace those in Schneirla only in quality, but not always in having a more instructive content. I think Schneirla still has the best picture of an army ant bivouac.

The strength of this book is more in bringing together a lot of information, which is otherwise widely scattered. The chapters on "Guests and Predators," "The Role Of The Army Ant In Tropical Ecosystems" and on "Myth and Metaphor," make up the flesh of the book. It is not so evident, but here is the largest and most detailed source as to why ants actually are important. Everybody agrees that ants are probably

one of the most dominant animal taxa, but besides very few, well-known sources such as the study by Fittkau and Klinge (1973), there are not a lot of data easily available, such as the well hidden study by Erwin (1989). The same holds true for a summary on the myth of army ants. Anybody visiting a national park anywhere in the tropics will return with some stories about army ants. But then again, it is difficult to find such stories collated in a book.

I am negative about the book in a scientific way, but then I am positive about the later sections, and the photographic documentation, which make it worthwhile to have a copy of it on your own bookshelf.—*Donat Agosti, Department of Entomology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, U.S.A.*

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